

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Initially, applicant notes the previous Amendment filed June 30, 2006, contained a typographical error at page 9, line 3 in the Remarks. That Amendment should have pointed out that the trench isolation structures are elements 8c and 8d that include in-line portions 80c and 80d.

Claims 1-11 are pending in this application. The drawings were objected to under 37 C.F.R. § 1.83(a). The Title is amended to address the objection thereto. Claim 6 was objected to, and claim 6 is amended by the present response as suggested in the Office Action to address the objection thereto. Claim 2 was rejected under 35 U.S.C. § 112, first paragraph. Claims 1, 2, 6, 9, and 10 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. patent 5,894,156 to Terashima et al. (herein "Terashima") in view of U.S. patent 6,798,037 to Leonardi and U.S. patent 5,883,413 to Ludikhuizen. Claims 3-5, 7, 8, and 11 were objected to as dependent upon a rejected base claim, but were noted as allowable if rewritten in independent form to include all of the limitations of their base claim and any intervening claims.

Applicant gratefully acknowledges the indication of the allowable subject matter in claims 3-5, 7, 8, and 11.

Addressing first the objection to the drawings, that objection is traversed by the present response. The drawings were objected to as not showing the "plurality of field plates" recited in claim 11. In reply applicants submit that feature is shown in Figures 34 and 35 of the application. Thus, the drawings are believed to show each feature recited in the claims.

Addressing now the rejection of claim 2 under 35 U.S.C. § 112, first paragraph, that rejection is traversed by the present response.

Claim 2 is amended to clarify that the second trench isolation structure has “a portion” not connected to the first trench isolation structure. That feature is believed to clearly be supported by Figure 19 in the present specification as a non-limiting example, which shows trench isolation structures 8c or 8d have portions not connected to a trench isolation structure 8a and separated by a distance from the trench isolation structure 8a. Thereby claim 2 is believed to be proper under 35 U.S.C. § 112, first paragraph as currently amended.

Addressing now the rejection of claims 1, 2, 6, 9, and 10 under 35 U.S.C. § 103(a) as unpatentable over Terashima in view of Leonardi and Ludikhuizen, that rejection is traversed by the present response.

With respect to independent claim 1, the outstanding Office Action cites Leonardi to disclose a trench isolation structure in element 10. However, applicants note that since Terashima discloses at column 1, lines 31-33 that “the n diffusion region 5 and the n+ buried diffusion region 4 constitute a resurf structure surrounded by the p diffusion region 3”, the leftmost p diffusion region 3 is believed to be connected to the rightmost p diffusion region 3 in Figure 12 and both are accordingly the same region. Therefore, the basis for the outstanding rejection that only the rightmost p region 3 is an isolation structure in Figure 12 of Terashima is believed to be improper, and is an improper hindsight reconstruction of the claimed invention. That is, the leftmost p diffusion region 3 should also be an isolation structure if the rightmost p region 3 is recognized to be an isolation structure. In that case, all of the p diffusion region 3 in Terashima would be replaced by the isolation structure 10 in Leonardi if a combination of Terashima and Leonardi was effectuated.

Accordingly, applicants respectfully submit one of ordinary skill in the art would not have been motivated to combine Terashima and Leonardi so that only the rightmost p diffusion region in Terashima would have been replaced by the isolation structure 10 of Leonardi.

Thereby, independent claim 1, and the claims dependent therefrom, are believed to distinguish over the applied art.

Moreover, applicants note dependent claims 6 and 10 even further distinguish over the applied art.

As indicated in the Office Action, in Terashima an end portion of the p diffusion region 3 reaches a depth shallower than the greatest possible depth of the n+ buried diffusion region 4 provided ***not directly below*** the n diffusion region 5 connected to aluminum lead 8, see Figure 12 in Terashima. However, an end portion of the first trench isolation structure reaches a depth shallower than the greatest depth of the buried impurity region provided ***directly below*** the second impurity region being connected to a drain electrode, not a depth shallower than the greatest depth of the buried impurity region provided not directly below the second impurity region. Therefore, even if the rightmost p diffusion region 3 in Figure 12 of Terashima is replaced by the isolation structure 10 of Leonardi and the n-type zone 18 of Ludikhuizen is provided directly below the n diffusion region 5 of Terashima, it is not at all indicated whether or not an end portion of the isolation structure 10 would reach a depth shallower than the greatest depth of the n-type zone 18.

Thereby, the further features recited in claim 6 are not suggested by the applied art, and no motivation has been cited for such a combination.

Further, with respect to dependent claim 10, the Office Action indicates a polysilicon 11 in Figure 12 of Terashima corresponds to the field plate. However, Terashima only indicates that “[t]he polysilicon 11 has the same potential as that of the p diffusion region 3”. Therefore, it is not at all indicated to one of ordinary skill in the art that the polysilicon 11 is electrically connected to the p diffusion region 3 because two regions could be the same potential without being electrically connected to each other. Furthermore, even if the polysilicon 11 is electrically connected to the rightmost p diffusion region 3, the polysilicon

11 is not necessarily electrically connected to the n-epitaxial layer 2 in the case the isolation structure 10 is provided instead of the rightmost p diffusion region 3.

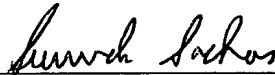
Thereby, the features further recited in claim 10 are not at all suggested by the applied art.

In view of these foregoing comments applicant respectfully submits independent claim 1, and the claims dependent therefrom, clearly distinguish over Terashima in view of Leonardi and Ludikhuizen.

As no other issues are pending in this application, it is respectfully submitted that the present application is now in condition for allowance, and it is hereby respectfully requested that this case be passed to issue.

Respectfully submitted,

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